PSYCHOLOGY.

Vision in a Young Girl Six Years of Age, Operated Upon for Double Congenital Cataract.—M. Grafé has published in the *Revue Scientifique* July 16, 1892, an interesting account of an operation for double cataract, performed by M. Bribosia upon a blind girl 5 years of age, and discusses, in the same paper, some questions of sight psychology. This reminds me of a similar operation performed by myself several years ago upon a young girl 6 years old, born with a double white cataract. Some notes of that operation, which I have kept, will perhaps be of use to M. A. Grafé in the researches he has undertaken in a new field.

What are the sensory impressions and emotions of a person born blind when the veil which has hidden from him the marvellous world is suddenly rent? Would he, at first sight, see, as has been taught, objects reversed, in consequence of the crossing of the rays of light from the object before their contact with the retina? Would he have intuitively an idea of distance and of the third dimension of matter, or would this idea be gained by observation and experience?

In order to succeed in solving the problems of optical physics and visual psychology, M. A. Grafé arrived a little late after the operation by M. Bribosia. I had opportunities in the case of the child 6 years of age, more advantageous for studying the curious phenomena which took place, not only during the operation, but also during the dressing of the wound and the first exercise of the newly acquired sense.

The following are the notes of the operation:

Julie D. had a double white congenital cataract at the age of 6 years. She perceived less and less from infancy the light of day, even after the local use of belladonna. Being intelligent, she had acquired a variety of knowledge from conversation. Touch and hearing had become very sensitive, and her memory was excellent.

I operated upon both eyes at the same time, as was my custom with double cataract in old people as well as young. But, in order to avoid a sudden flood of light, I operate always in a slightly darkened room; and before attending to the second eye, I hermetically seal the first with a simple bandage. The dressing of the wound for the first few days is done in the same manner in a similarly darkened room.

When I allowed Julie D. for the first time to remove the bandage from her eyes she had a slight sensation of dizziness, which made her

put her hands to her face. Then she saw at a little distance objects which she recognized by their shape; a coffee-mill, my hands, knives, forks, a plate, a cup, a watch, a handkerchief, etc., the forms of which she had become familiar with through touch during her long blindness. But she could not distinguish color. She would make hap-hazard guesses at red, green, blue, and yellow, but could sometimes recognize black and white. I was anxious to know her first optical impression as to the position of objects, whether they appeared right or reversed. With this idea in mind I showed her, first of all, a coffee-mill, held at the distance of a meter from her, and said, "What is this?" "My coffee-mill," said she without hesitation. "How do I hold it, with the drawer on top or on the bottom?" "It is below, as it ought to be." Thinking that the child was answering in accordance with her preconceived notions contrary to her first visual sensation, I showed her a knife fixed vertically by two threads to a sheet of white paper, and asked her to show me with her hand where was the handle of the knife, at the top or the bottom of the paper. She pointed immediately with her right hand to the handle, saying: "It is there, at the top." This was correct.

I did not indulge my scientific curiosity further at that time. At the second and third interviews which took place the sixth and seventh day after the operation, Julie was no longer deceived as to colors, but she still imagined as she had at first, that everything she saw was within reach. Space, height and volume did not as yet exist for her. However, she appreciated perfectly the distance of sounds. When objects were held for her at less than a meter's length, she would instinctively draw back, feeling, as she said, that they would strike her eyes. As to everything she saw that was at more than arm's length, they all seemed ranged on the same line, that is, all seemed equally distant. But this illusion did not last long. The sense of touch had given her such just ideas of the form, the size, and the different dimensions of buildings, persons and the objects in the midst of which she had lived, that ideas of perspective and appreciation of distances were speedily acquired.

At the end of fifteen days she said she had almost forgotten that she had ever been blind.

Had she, in the presence of what we call the wonders of nature, the flowers, the trees, the monuments, the country, the storms, the sky with its myriad stars, the sun and the moon, that awakening of the imagination roused by a spectacle as magnificent, as unexpected, which expresses itself in an ecstatic admiration? She was astonished at all,

but she admired nothing. Had she dreamed, perhaps, during that long night of six years more and better things than the realities which unfolded themselves before her eyes?

It is a fact that the persons who have lost their sight, and recovered it through an operation, have shown more pleasure at seeing again their relations, their friends, and their coffee-mills than did Julie D. at seeing for the first time all the objects of which she could have had only a feeble and imperfect idea gained either through the sense of touch or from descriptions given her by others.—H. Boëns, Revue Scientifique, Oct. 29, 1892.

ARCHÆOLOGY AND ETHNOLOGY.

Area and Population of European Countries.—M. E. Lavasseur, in a communication to the Academie des Sciences on March 21, 1892, calls attention to the diversity usually to be found in statistics of area and population in standard works of reference. Considering only such high class publications as "Die Bevölkerung der Erde," the "Almanach de Gotha," and the "Statesman's Year-Book," he points out that diversity does not necessarily convict any of error, as the approximation to the exact figures may be arrived at in different ways; that, in fact, absolute agreement in statistics is a sign that they have been copied by one writer from another. In some cases the areas of countries are officially derived from cadastral surveys, which, as a matter of fact, often do not include the whole land and water area of a country, geographers not being agreed as to what water areas should be reckoned along with the land. In other cases official or semi-official measurements are made on large-scale topographical maps, and the degree of approximation must vary with the scale, and with the technical skill of the computor. Some countries are content with measurements or estimates made by individuals, such as those of Strelbitsky and of Perthes' Institute. The calculation of population is still more uncertain, being dependent on census returns (themselves imperfect), calculated to any given intermediate date by estimates derived from registers of births, deaths, immigration and emigration. In a table brought down to the end of 1890 M. Levasseur gives a conspectus of the area, population, and density of population of the countries of Europe, classed in four groups, as follows: